

*AF ZJW*



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT : Chang-Rae Jeong  
 SERIAL NO. : 09/350,436 EXAMINER : Ted M. Wang  
 FILED : July 9, 1999 ART UNIT : 2634  
 FOR : APPARATUS FOR CONVERTING PCM SIGNAL

APPEAL BRIEF TRANSMITTAL LETTER

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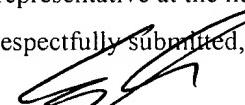
Dear Sir:

Appellants respectfully submit three copies of a Brief For Appellants that includes an Appendix with the pending claims. The Appeal Brief is now due on December 11, 2005.

Appellants enclose a check in the amount of \$500.00 covering the requisite Government Fee.

Should the Examiner deem that there are any issues which may be best resolved by telephone communication, kindly telephone Applicants undersigned representative at the number listed below.

Respectfully submitted,

  
 By: Steve Cha  
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Date: December 6, 2005

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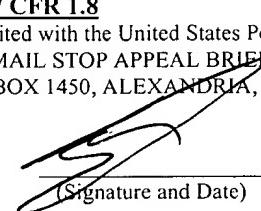
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Steve Cha, Reg. No. 44,069  
 (Name of Registered Rep.)

  
 (Signature and Date)



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Before the Board of Patent Appeals and Interferences**

**In re the Application**

**Inventor : Chang-Rae Jeong**  
**Application No. : 09/350,436**  
**Filed : July 9, 1999**  
**For : APPARATUS FOR CONVERTING PCM SIGNAL**

**APPEAL BRIEF**

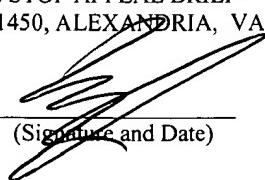
**On Appeal from Group Art Unit 2634**

**Steve Cha  
Attorney for Applicant  
Registration No. 44,069**

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(Name of Registered Rep.)

  
(Signature and Date)

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**I. REAL PARTY IN INTEREST**

The real party in interest is the assignee of the present application, Samsung Electronics., LTD., and not the party named in the above caption.

**II. RELATED APPEALS AND INTERFERENCES**

With regard to identifying by number and filing date all other appeals or interferences known to Appellant which will directly effect or be directly affected by or have a bearing on the Board's decision in this appeal, Appellant is not aware of any such appeals or interferences.

**III. STATUS OF CLAIMS**

An amendment after final rejection is being filed simultaneously with the instant appeal brief. Claims 1-11 have been presented for examination. All of these claims are pending, stand finally rejected, and form the subject matter of the present appeal. Of these claims, claims 2-11 are original, and claim 1 has been amended to correct a typographical error.

**IV. STATUS OF AMENDMENTS**

The Amendment after the Final Office Action filed October 11, 2005 has not been entered. There was no amendment made to claims 1-11, except in claim 1, a word "and" was added. Accordingly, the applicant assumes that the amendment filed simultaneously with this appeal brief is entered, because the only revision in the amendment was correct a typographical error.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

The present invention relates to an apparatus for converting pulse code modulation (PCM) signal in such away that it provides compatibility between two different coding standards, namely, A-law and *u*-law. In the prior art, a converter indiscriminately converts each and every channel in the multi-channel environment during a conversion process of two different modulated signals. Further, the prior art converter complicates the overall size of the system and requires a complicated design, thus results in a high fabrication costs. Since the prior art converts all channel signals of the multi-channel signals indiscriminately, it is not suitable for selecting only one or more channel signals as desired (page 3, lines 13-21). Accordingly, the present invention provides an interface capable of providing compatibility between two different coding with respect to only selected channels.

In one aspect of the present invention, the inventive codec apparatus 210 includes a codec 210, a channel selector 212 for generating a channel select signal, S\_FS, a first mixer 214, and a second mixer 216 (Figure 2). The codec 210 has input/output terminals for receiving and supplying the A-law modulated digital signals B and D, respectively, and input/output terminals for receiving and supplying the *u*-law modulated digital signals A and C, respectively. In operation, the channel selector 212 outputs the channel select signal (S\_FS), mixing control signals that are controlled by a clock signal CLKx, a frame sync signal FSx, read address, and data input. In response to the channel select signal (S\_FS) generated by the channel selector 212, the codec 210 selectively converts a specified channel signal from the modulated multi channel signals (page 7, lines 13 thru page 8, line 4). To achieve this, the first mixer 214 and the second mixer 216 includes

two buffers operating complementarily to each other in response to the mixing control signal, so that each pair of the buffers operates in such a manner that one buffer is enabled while the other is disabled, and vice versa (page 8, lines 3-11). Hence, the mixer is used in conjunction with the codec 210 to selectively convert specified channels by storing the digital signal that are output without any conversion operated by the codec 210 (page 11, lines 16-20).

More specifically, the inventive codec apparatus 210 includes an A-law codec 320 and a *u*-law codec 310 (Figure 3). The A-law codec 320 demodulates the A-law modulated digital signal S into an analog signal to be supplied to the *u*-law codec 310, and also modulates an analog signal output received from the *u*-law codec 310 into the A-law modulated digital signal Q. Meanwhile, the *u*-law codec 310 demodulates the *u*-law modulated digital signal R into analog signal to be supplied to the A-law codec 320, and also modulates the analog signal output from the A-law codec 320 into the *u*-law modulated digital signal P. Both the *u*-law codec 310 and A-law codec 320 determines which channel signals of the multi channels to be modulated or demodulated in response to the frame sync signal FS<sub>x</sub>, clock signal CLK<sub>x</sub>, and the channel select signal (S\_SF) from the signal channel selector 212 (page 9, lines 3-8). Meanwhile, the channels that are not selected are output to the mixer without any conversion operated thereon by the codec 210 (page 11, lines 18-20).

**VI. GROUND FOR REJECTION TO BE REVIEWED ON APPEAL**

Whether claims 1-11 stand invalidly rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 4, 661,946 issued to Takahashi (“Takahashi”).

**VII. ARGUMENT**

**Rejection of claims 1 and 6:**

Claim 1, in part, recites:

...a channel selector for generating a channel select signal for identifying said at least one channel of the multiple channels in said system, and . . .

at least one codec means for selectively converting said identified input digital signals received in said at least one channel from said one of said two different modulation standards to the other one of said two different modulation standards in response to said channel select signal;

a plurality of mixers for selectively releasing and transmitting said input digital signal modulated by said one of said two different modulation standards and said converted input digital signal to the other one of said two different modulation standards by said codec means in response to said channel select signal.

Claim 6 also recites similar features.

**Takahashi Fails to Anticipate the Claimed Invention**

“Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*” Lindemann

Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 USPQ 481, 485 (Fed. Cir. 1984) (emphasis added).

The Advisory Action, in maintaining the rejection of the claims, states that Takahashi discloses an encoding law conversion memory, which functions same as the mixer in the present invention to selectively identify and convert the selected channel in response to a channel select signal.

It is respectfully submitted that the function of the mixers in the present invention is to operate in response to a mixing control signal for storing the digital signal that are output without any conversion operated thereon by the codec 210 (page 11, lines 16-20). Hence, the mixer in the present invention is used in conjunction with the codec 210 to selectively convert specified channels selectively.

Takahashi, by contrast, fails to disclose or suggest the conditionality recited in claim 1.

Takahashi relates to a digital switch module having an encoding law conversion memory and a control memory, in which the control memory designates which of the regions in the encoding law conversion memory is to be used during each time slot, thus dynamically controlling whether data passing through the digital switch module is converted or not since digitalized voice signals may require conversion but non-voice signals may not. Hence, the memory 24 of Takahashi performs the actual encoding law conversion between the A-law and the u-law trunks, so that voice signal and non-voice signals can be converted selectively.

Takahashi fails to teach or disclose the need to convert a specific channel of the multi channel signals, as in the present invention. In fact, Takahashi converts every

channel signal indiscriminately. Specifically, Takahashi teaches a digital switch module having an encoding law conversion memory and a control memory, in which a selector is provided to execute transmission of control signals in a time division slot manner so that the control memory can designate which of the regions in the encoding law conversion memory is to be used during each time slot. The examiner implies that the switching occurring in the time slots indicates that a specific digital channel is selected for conversion in each time slot. However, the time multiplexing scheme disclosed in Takahashi merely shows how the signals are modulated and does not teach features recited in the base claims as described above.

Specifically, Takahashi fails to show how “mixer” performs “selectively releasing and transmitting” of “said input digital signal modulated by said one of said two different modulation standards and said converted input digital signal to the other one of said two different modulation standards by said codec means” occurs “in response to said channel select signal.”

Moreover, the examiner presumably identifies the “channel select signal” of claim 1 as corresponding to some control signal to the multiplexer 20. It is also presumed that “said input digital signal modulated by said one of said two different modulation standards” is deemed to correspond to encoded data at the multiplexer 20. It is further presumed that “said converted input digital signal to the other one of said two different modulation standards by said codec means” corresponds to the input to the demultiplexer 25 as shown by the rightmost arrow in FIG. 2 and in FIG. 3. It is unclear, however, how “selectively releasing and transmitting” of “said input digital signal modulated by said one of said two different modulation standards and said converted input digital signal to

the other one of said two different modulation standards by said codec means” occurs “in response to said channel select signal.”

Furthermore, it is unclear in what sense it can properly be said that the “selectively releasing and transmitting” is performed by “mixers.” The examiner suggests the Takahashi memories 24, 29 are “mixers for selectively releasing and transmitting said input digital signal modulated by said one of said two different modulation standards and said converted input digital signal to the other one of said two different modulation standards by said codec means in response to said channel select signal.”

### **Claims 2-5 and 7-11 Depend From an Allowable Base Claim**

Claims 2-5 and 7-11 depend from independent claims 1 and 6, respectively, which includes subject matter not disclosed by, and allowable over, Takahashi. Applicant respectfully submits that claims 2-5 and 7-11 are allowable at least for their dependence upon an allowable base claim for reasons analogous to those held in *In re Fine*, 837 F.2d 1071, 5 USPQ 2d 1596 (Fed. Cir. 1988) (if an independent claim is non-obvious under 35 U.S.C. §103(a), then any claim depending therefrom is non-obvious).

In this case, 2-5 and 7-11 depend from claims 1 and 6, respectively, which has been shown to include subject matter not disclosed by Takahashi. Accordingly, claims 2-5 and 7-11 contain subject matter not disclosed by Takahashi.

In view of the above, applicant submits that the above referred-to claims are patentable over the teachings of Takahashi.

**VIII. CONCLUSION**

In view of the above analysis, it is respectfully submitted that the referenced teachings, whether taken individually or in combination, fail to anticipate or render obvious the subject matter of any of the present claims. Therefore, reversal of all outstanding grounds of rejection is respectfully solicited.

Respectfully submitted,



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By: Steve Cha  
Attorney for Applicant  
Registration No. 44,069

Date: December 6, 2005

**IX. CLAIMS APPENDIX**

1. (Currently amended) An apparatus for converting pulse code modulation (PCM) signals from either one of two different modulation standards to the other one of said two different modulation standards in a system characterized by having a plurality of communication channels with each channel having a plurality of input digital signals modulated by said one of said two different modulation standards, said apparatus comprising:

a channel selector for generating a channel select signal for identifying said at least one channel of the multiple channels in said system; and

at least one codec means for selectively converting said identified input digital signals received in said at least one channel from said one of said two different modulation standards to the other one of said two different modulation standards in response to said channel select signal; and,

a plurality of mixers for selectively releasing and transmitting said input digital signal modulated by said one of said two different modulation standards and said converted input digital signal to the other one of said two different modulation standards by said codec means in response to said channel select signal.

2. (Original) The apparatus as set forth in claim 1, wherein said codec means further comprises:

a first codec means for converting said input digital signal modulated by said one of two different modulation standards received in said identified at least

one channel of the multiple channels into an analog signal in response to said channel select signal, and

a second codec means for converting said converted analog signal by said first codec means into corresponding digital signals in accordance with the other of said two different modulation standards in response to said channel select signal.

3. (Original) The apparatus as set forth in claim 1, wherein said mixer further comprises a first buffer for receiving said converted input digital signal by said other one of said two different modulation standards from said codec means, and a second buffer sharing an output terminal with said first buffer for receiving said input digital signal modulated by said one of said two different modulation standards.

4. (Original) The apparatus as set forth in claim 1, wherein said channel select signal is generated in response to a frame sync signal, a clock signal, and a read address controlled by said clock signal for reading an output data.

5. (Original) The apparatus as set forth in claim 4, wherein said channel select signal is synchronized with said at least one channel of the multiple channels containing said input digital signals modulated by said one of said two different modulation standards.

6. (Original) An apparatus for converting pulse code modulation (PCM) signals from either one of two different modulation standards to the other one of said two different modulation standards in a system characterized by having a plurality of communication channels with each channel having a plurality of input digital signals modulated by said one of said two different modulation standards, said apparatus comprising:

a channel selector for generating a channel select signal for identifying said at least one channel of the multiple channels containing said input digital signals modulated by said one of said two different modulation standards;

a first codec means for converting said input digital signal modulated by said one of two different modulation standards received in said identified at least one channel of the multiple channels into an analog signal in response to said channel select signal;

a second codec means for converting said converted analog signal by said first codec means into corresponding digital signals in accordance with the other of said two different modulation standards in response to said channel select signal; and,

a plurality of mixers for selectively releasing and transmitting said input digital signal modulated by said one of said two different modulation standards and said converted input digital signal to the other one of said two different modulation standards by said codec means in response to said channel select signal.

7. (Original) The apparatus as set forth in claim 6, wherein said mixer further comprises

a first mixer for selectively releasing and transmitting said input digital signal modulated by said one of said two different modulation standards and said converted input digital signal by the other of said two different modulation standards by said second codec means in response to said channel select signal, and

a second mixer for selectively releasing and transmitting said input digital signal modulated by said one of said two different modulation standards and said converted input digital signal by the other of said two different modulation standards by said first codec means in response to said channel select signal.

8. (Original) The apparatus as set forth in claim 7, wherein said first mixer further comprises

a first buffer for receiving said converted input digital signal by the other of said two different modulation standards by said second codec means, and a second buffer sharing an output terminal with said first buffer for receiving said input digital signal modulated by said one of said two different modulation standards.

9. (Original) The apparatus as set forth in claim 7, wherein said second mixer further comprises:

a third buffer for receiving said converted input digital signal by the other of said two different modulation standards by said first codec means, and a fourth buffer sharing an output terminal with said first buffer for receiving said input digital signal modulated by said one of said two different modulation standards.

10. (Original) The apparatus as set forth in claim 6, wherein said channel select signal is generated in response to a frame sync signal, a clock signal, and a read address controlled by said clock signal for reading an output data.

11. (Original) The apparatus as set forth in claim 10, wherein said channel select signal is synchronized with said at least one channel of the multiple channels containing said input digital signals modulated by said one of said two different modulation standards.

**X. EVIDENCE APPENDIX**

No supplemental evidence was provided by appellant that was entered into the record during the prosecution of this matter.

**XI. RELATED PROCEEDING APPENDIX**

No related proceedings are pending and, hence, no information regarding same is available.